

**REMARKS**

Claims 1-15 have been examined and have been rejected under 35 U.S.C. § 102(b).

**Preliminary Matters**

The Examiner has objected to the Abstract. Accordingly, Applicant has amended the Abstract in a manner believed to overcome the objection.

**Rejections under 35 U.S.C. § 102(b)**

The Examiner has rejected claims 1-15 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,685,232 to Inoue (“Inoue”).

The claimed invention relates to a wafer support device and a wafer support method. The wafer support device performs precise positioning of a vertical direction on a wafer. In the conventional methods, it is impossible to perform precise positioning of a vertical direction.

**A. Claim 1**

Claim 1 recites two pressure-receiving areas for the first pressing device, the main pressurizing chamber and the sub-pressurizing chamber. A main pressure controller controls pressure in the main pressurizing chamber and a sub-pressure controller controls pressure in the sub-pressurizing chamber. The two pressurizing areas make it possible to perform precise positioning of the vertical direction on a wafer.

The Examiner alleges the piezoelectric driving device (alleged first pressing device) has a main pressurizing chamber (Fig. 2, area next to ref. #7b) and a sub-pressurizing chamber (Fig.

2, area above ref. #7b). As an initial matter, the Applicant notes to the Examiner that the support face 7b relates to the stopper plate 6, and not to the piezoelectric driving device 5 (alleged first pressing device) (see Figs. 1 and 2 of Inoue).

Further, Applicant submits that the piezoelectric driving device 5 does not have a main pressurizing chamber and a sub-pressurizing chamber. Specifically, the piezoelectric driving device 5 of Inoue is not an air bearing device, but rather, is a piezoelectric device.

The support face 7b is part of an air bearing 7 which adjusts a rotation angle  $\theta$  of a rotation stopper plate 6 or a Z-stage 2 (see, col. 3 line 41-47). The rotation angle  $\theta$  is *not* movement in the vertical direction. Thus, the air bearing 7 is different from the claimed invention which performs precise positioning of a vertical direction. For example the air bearing 7 is provided with a pair of static pressure bearing pads 7a. The servo valves 7f are controlled by a controller 7g, whereby a pressure of pressurized air emitted from the bearing pads 7a toward a face of a rotation stopper plate is regulated to finely adjust a rotation angle  $\theta$  of the rotation stopper plate 6 or a Z-stage 2 within a gap of the air bearing 7 (see, col. 2, line 61-62, col. 3 line 41-47).

In addition, the air bearing 7 comprises only one chamber. Accordingly, Applicant submits that Inoue does not disclose or suggest a main pressurizing chamber and a sub-pressurizing chamber, as recited in claim 1.

Regarding the claimed controllers, the Examiner alleges that Inoue discloses “a main pressure controller (Fig. 2, ref. #7g, 7f, 8d) controlling a pressure in said main pressurizing controller, and a sub pressure controller (Fig. 2, ref. #7g, 8d) controlling a pressure in said sub-

pressurizing chamber”. Applicant submits that the switching valve 8d is not a sub pressure controller, but rather is a switching valve by which an internal pipeline 8c can be connected to either a vacuum source 8e or a pressurized air source 8f (col. 3, lines 14-21). The protruding pieces 7e are adhered to the upper face of the support member 8 by a vacuum suction force generated in suction grooves 8b formed on the upper face of the support member 8 and constitute locking means (see, col. 3, line 13-21).

Further, Inoue has two bearing pads 7a and two servo valves 7f to control a rotation angle  $\theta$  toward both a plus direction and a minus direction. Such control is different from the claimed invention which has a main pressure controller and a sub pressure controller to control precise positioning of a vertical direction. In other words, Inoue controls one chamber by one controller, so it is impossible to perform precise positioning of a vertical direction.

Claim 1 also recites a contact bar that is disposed on the movable base.

The Examiner maintains that the side edge of shaft 2a (alleged movable base) discloses the claimed contact bar. However, the claimed contact bar is positively recited in the claim and is “disposed on” the claimed movable base. The mere “edge” of the shaft 2a of Inoue does not teach or suggest a *contact bar* that is “disposed on” the shaft 2a. Thus, Inoue fails to anticipate the claimed contact bar.

Further, claim 1 recites a load sensor that detects a load.

The Examiner has failed to indicate where such feature is disclosed by Inoue, and Applicant submits that such feature is in fact *not* disclosed by Inoue.

Still further, claim 1 recites that the first pressing device has a cylinder fixed on the base.

The Examiner maintains that the claimed cylinder is disclosed by the shaft 2a of Inoue. However, as set forth above, the Examiner also maintains that the movable base is disclosed by the shaft 2a. Applicant submits that the shaft 2a cannot disclose both the cylinder, which is part of the first pressing device that presses the movable base and the movable base itself.

For the foregoing reasons, Applicant submits that independent claim 1 is patentable over the cited reference, and respectfully requests the Examiner to reconsider and withdraw the rejection.

**B. Claims 2-9**

Since claims 2-9 are dependent upon claim 1, Applicant submits that such claims are patentable at least by virtue of their dependency.

**C. Claim 10**

Applicant submits that claim 10 is patentable over the cited reference. For example, claim 10 recites that compressed air is provided into a main pressurizing chamber or a sub-pressurizing chamber. Claim 1 further recites that a movable base is moved by the compressed air in the main pressurizing chamber or the sub-pressurizing chamber.

For the reasons set forth above for claim 1, Applicant submits that Inoue does not disclose a main or sub-pressurizing chamber. Thus, the reference likewise does not disclose providing compressed air in the chambers or moving a movable base by the compressed air, as recited in claim 10.

Accordingly, Applicant submits that claim 10 is patentable over the cited reference and respectfully requests the Examiner to reconsider and withdraw the rejection.

**D. Claims 11-13**

Since claims 11-13 are dependent upon claim 10, Applicant submits that such claims are patentable over the cited reference at least by virtue of their dependency.

**E. Claims 14 and 15**

Applicant has canceled claims 14 and 15 without prejudice or disclaimer. Accordingly, Applicant submits that the rejections of such claims is now moot.

**Newly Added Claims**

Applicant has added claims 16-19 to provide more varied protection of the present invention. Applicant submits that claims 16-19 are fully supported by claims 1, 3 and 5, in addition to the non-limiting embodiments on pg. 6, line 15 to pg. 7, line 11 and Figs. 3 and 4. Applicant submits that claim 16 is patentable for at least analogous reasons as claim 1, and claims 17-19 are patentable at least by virtue of their dependency upon claim 16.

**Conclusion**

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the

Amendment under 37 C.F.R. § 1.111  
U.S. Application No. 10/694,841

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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